In the Claims

Please cancel without prejudice claims 1-36. Please add the following new claims.

37. A method of stimulating or enhancing a protective immune response to an antigen in a mammal; which method comprises co-administering to a mucosal surface of said mammal with the antigen an effective adjuvant amount of a non-toxic double mutant form of pertussis toxin, said antigen being one which elicits a protective immune response when co-administered with said effective adjuvant amount of non-toxic double mutant form of pertussis toxin.

38. A method according to claim 37 wherein the non-toxic double mutant form of pertussis toxin comprises an S_1 sub unit containing an amino acid at position 129 which is other than glutamic acid.

39. A method according to claim 38, wherein the amino acid at position 129 in the S_1 sub-unit is glycine.

40. A method according to claim 37 wherein the non-toxic double mutant form of pertussis toxin comprises an S_1 sub unit containing an amino acid at position 9 which is other than arginine.

41. A method according to claim 40 wherein the amino acid at position 9 is lysine.

42. A method according to claim 37 wherein the antigen and the non-toxic form of pertussis toxin are administered intranasally.

43. A method according to claim 37 wherein the antigen and the non-toxic double mutant form of pertussis toxin are administered at the same time.

44. A method according to claim 43 wherein the antigen and the non-toxic double mutant form of pertussis toxin are present in admixture in a composition administered to the mammal.

45. A method according to claim 37 wherein the antigen is selected from the group consisting of tetanus toxin C-fragment, and one or more immunogenic fragments thereof.

46. A method according to claim 45 wherein the vaccine composition contains both FHA and P69.

47. A vaccine composition in the form of nasal drops or a nasal spray, the composition comprising an antigen and an adjuvant capable of enhancing the immune response to the antigen in a mammal to which the composition is administered; wherein the adjuvant is a non-toxic double mutant form of pertussis toxin and said antigen is one which elicits a protective immune response when co-administered with said adjuvant.

48. A vaccine composition according to claim 47 wherein the mutant form of pertussis toxin comprises an S_1 sub unit containing an amino acid at position 129 which is other than glutamic acid.

49. A vaccine composition according to claim 48 wherein the amino acid at position 129 is glycine.

50. A vaccine composition according to claim 47 wherein the non-toxic double mutant form of pertussis toxin comprises an S_1 sub unit containing an amino acid at position 9 which is other than arginine.

51. A vaccine composition according to claim 50 wherein the amino acid at position 9 is lysine.

52. A vaccine composition according to claim 47 packaged in a container for dispensing a metered dose of the composition in spray or drop form.

53. A vaccine composition comprising an antigen and an adjuvant which enhances the immune response to the antigen in a mammal to which the composition is administered; wherein the adjuvant is a non-toxic double mutant form of pertussis toxin and the antigen is selected from tetanus toxin C fragment and one or more immunogenic fragments thereof.

54. A vaccine composition according to claim 53 which is in a form selected from nasal drops and a nasal spray.